Va., would be caused to fluoresce by the heat of the hand, and that a similar variety had been described as occurring from Penandræa, Cornwall, England. He had cut a small stone of this substance, and had passed it around the rooms of the Academy of Sciences, the stone emitting a phosphorescence during the entire time. Mr. Kunz exhibited a copy of Sir Francis Reed's "Experimentala Naturæa" (Amsterdam, 1685), which contained a plate showing eight of these so-called cobra-de-capello stones, to which were attributed the power of curing the bites of serpents and other venomous bites. Mr. Kunz also exhibited specimens of tabasheer, the variety of opal found in the joints of the bamboo, which strikingly resembled in its appearance, and also in its power of absorbing an equal weight of water, the variety of hydrophane described by him from a Colorado cavity, stating at the same time that the *oculus mundi* of the gem-writers of the sixteenth to the eighteenth century was evidently this tabasheer, which is powdered by the natives, and used as a medicine.

— C. O. Boutelle, H. L. Whiting, and B. A. Colonna, a committee of the assistants of the United States Coast and Geodetic Survey, announce, on behalf of themselves and their associates, that they intend to ask the President of the United States to appoint Dr. Benjamin Apthorp Gould of Cambridge, Mass., as superintendent of the Coast and Geodetic Survey. Dr. Gould is no stranger to the Coast Survey. From 1851 to 1868 he was attached to the work, and for nearly fourteen years was in general charge of all its telegraphic longitude parties. Between 1853 and 1867 eleven printed reports bear his name. The first telegraphic determination of the difference of longitude between Greenwich, England, and Cambridge, in New England, was under his general charge, and he personally superintended the observations at the eastern end of the cable, near Foilhollerum, in Ireland. Soon after this last great work of 1866-67, he left the country to found an astronomical observatory, and educate native astronomers at Cordova, in the Argentine Republic. What he has done for astronomy in the southern hemisphere during the thirteen years of his stay there, has been well set forth in the "Proceedings of the National Academy of Sciences," at its session in April, 1888, in Washington, when the Watson gold medal was awarded to him for his distinguished and successful labors.

— At the Academy of Sciences, Paris, March 4, remarks accompanying the presentation of a work entitled "Introduction à l'étude de la Chimie des anciens et du moyen age," were made by M. Berthelot. This work forms a sequel to the author's "Origines de l'Alchimie" and "Collection des anciens Alchimistes grecs," thus completing a series of historical researches which fully establish the true character of the old philosophic doctrines, methods, and practices, which were hitherto supposed to be mainly absurd and fanciful, but which must henceforth enter into the scheme of historical evolution of the positive sciences. Here M. Berthelot gives a full description and translation of the Leyden papyrus of Egyptian origin, the oldest extant treatise on chemistry. The signs, notations, and appliances of the ancient alchemists are also described and reproduced by the photogravure process.

— Capt. Moore, of H.M.S. "Rambler," has lately described in a paper read before the China Branch of the Royal Asiatic Society, and summarized in *Nature*, the appearance and effects of the remarkable "bore" which often occurs in Hangchow Bay. This dangerous visitor is the result of the struggle between the advancing tide in the great estuary and the current of the river. Capt. Moore and his officers on several occasions observed the progress of the wave, and their investigations may be summarized as follows: The rate at which the bore travels varies from ten to about thirteen miles per hour. The height of the bore rarely exceeds 12 or 14 feet; and broken water, in which no small boat could live, follows it for some distance. With the passing of the wave the tide rises many feet in a few seconds; in one instance, observed by Capt. Moore, it rose from 9 feet 4 inches below, to 4 feet 7 inches above, mean level. The rush of the bore was so strong that the force of the waves breaking against the broadside of the "Rambler" sent the water into the mizzen chains, and the spray on to the poop. The junks in that region are protected by platforms with narrow steps cut in the sides. To the north of the estuary is a great sea-wall, built to protect the surrounding country from being flooded by these great tidal waves. It is thirty-five miles long, and it is strengthened, where the bore strikes most strongly, by an elliptical stone buttress, 253 feet long by 63 feet wide. Behind this the junks are drawn up for shelter.

— A test-piece of Mullens silicated iron, has stood a compression of 120,000 pounds per square inch. It finally broke in the same manner as specimens of stone do. It contained a very large proportion of silica.

— The latest news from the Sudan encourages the hope that Emin Pacha has successfully resisted the Mahdi, and makes it probable that Osman Digma's report of his surrender was solely a trick to prevent the English from action at Suakim. A despatch dated from Cairo, March 23, says that Mahommed Beraivi, who has arrived here from Omdurman, reports that Sheik Senoussi's forces occupied Darfur and Kordofan, and expelled the dervishes. In July last, Mahommed Beraivi accompanied an expedition of six thousand Mahdists which proceeded in steamers and barges against Emin Pacha. He states that Emin defeated the dervishes near Bor, killing most of them, and capturing their steamers and much ammunition. A despatch of the following day adds that Emin was reported to be in good health, and that all his people and some European travellers were with him in Bahr-el-Gazal.

BOOK-REVIEWS.

Profit Sharing between Employer and Employee. By NICHOLAS P. GILMAN. Boston and New York, Houghton, Mifflin, & Co. 12°. $1.75.

THIS is an elaborate history of profit-sharing, beginning with the initiation of the system in France by Leclaire, and tracing its development in Europe and America to the present time. The author shows a deep interest in his subject, and gives evidence of painstaking industry in the study of the facts. His work is well written and well arranged, and presents as exhaustive an account of the subject as any reader will be likely to want. Though Mr. Gilman s a firm and even enthusiastic believer in profit-sharing as a cure for the industrial evils of the age, he does not fail to recount those experiments with the system that have failed, as well as those that have succeeded. He does not confine himself however, to the mere history of the system, but discusses its value and its relations to the present wages system on the one hand, and to that of co-operation on the other. Co-operation, he thinks, is not destined to succeed, except under specially favorable circumstances, because the laborers are not willing to pay a sufficient salary to their manager to secure the best talent. Profit-sharing, on the other hand, leaves the management where it is now, while it furnishes the means, as Mr. Gilman thinks, to reconcile the laborers to their position. How far these views are correct, time alone can tell; but we would point out that the *Maison Leclaire*, which the author chiefly relies on as an example of profit-sharing and its benefits, is really a co-operative society, somewhat different from the ordinary type, but none the less really co-operative. The workmen, or a certain portion of them, own one-half the capital, the two managing partners owning the remainder; and when one of the managing partners dies, or retires from the firm, the workmen who are shareholders choose his successor. Part of the profits are divided among all the workmen, whether they own capital or not; but this is only one of the distinguishing features of the *Maison*, that of co-operation being quite as prominent. We shall be glad to hear that Mr. Gilman's work meets with a ready sale.

Deductive Logic. BY ST. GEORGE STOCK. London and New York, Longmans, Green, & Co. 16°. $1.25.

THIS is an ordinary treatise on formal logic, with no considerable deviations from the usual type. The author says that before publishing the work he submitted it to the criticism of a friend, who advised him to strike out some new matter which the manuscript contained, and that he did so, retaining only a few novelties. Those

that are retained do not seem to us of any particular value, while one of them is of doubtful expediency: we mean his use of the term "privative attribute." This term has always been used to mean the absence of an attribute where it was once present or might be expected to be present; but Mr. Stock uses it to mean the absence of an attribute in a thing that might have it, as when a dish is called "empty." The execution of the work is in the main good; the style of expression, in particular, being very clear. The least satisfactory part in this respect is that relating to the syllogism, which, as in most other logical works, contains too much technical matter, and does not present a sufficient number of concrete examples to illustrate the principles. But while Mr. Stock's mastery of the forms of reasoning is complete, he has some views as to its nature and validity which can hardly pass unchallenged. Thus, he says that "inductive inferences are either wholly instinctive, and so unsusceptible of logical vindication, or else they may be exhibited under the form of deductive inferences (p. 128). And again he affirms that "no inductive inference can ever attain more than a high degree of probability; whereas a deductive inference is certain, but its certainty is purely hypothetical (p. 130). If this is true, the human intellect is in a bad way. Hence, without meaning to detract from the merits of Mr. Stock's work, we would suggest that what the world needs at the present time is not a new presentation of the forms of reasoning, but a deeper study of the nature of reasoning and of the principles on which it depends.

Botany for Academies and Colleges. By ANNIE CHAMBERS-KETCHUM, A.M. Philadelphia, Lippincott. 12°. $1.

THE course of study in these lessons is based upon the inductive method of A. L. de Jussieu. Beginning with cryptogamia, plant-development is gradually unfolded, from the green stain on the door-stone to magnolia and clematis. Although the natural system is followed by the author, there are some departures from the method of Jussieu, its founder. This is recognized by the author, who, however, expresses the opinion that if Jussieu had lived to learn the lessons of the fossils, as well as other late discoveries in science, he would have been the first to advocate an arrangement which is so logical because it is so natural.

In addition to structural botany, which includes morphology, physiology, phytotomy or plant anatomy, and chemistry, systematic botany is concisely dealt with. The rules for nomenclature and pronunciation are especially deserving of mention. A manual of plants, including all the known orders with their representative genera, forms the second part of the volume. It is, of course, merely an outline of the 150,000 or more known species of plants, but it appears to be very complete. An excellent index and well-executed illustrations render this book one of the best for teaching purposes which we have seen.

A History of Eighteenth Century Literature. By EDMUND GOSSE. London and New York, Macmillan. 12°. $1.75.

THIS is the third volume of the history of English literature which the publishers are now issuing, the second volume of which was noticed in *Science* when it appeared. The different volumes are by different writers, each chosen for his special acquaintance with the period to be dealt with, and the first and fourth volumes are not yet published. The present work covers the period from 1660 to 1780, — a period, as the author remarks, not exactly conterminous with the eighteenth century, but nevertheless forming a distinct chronological division in the history of English literature. The work is in the main well done, though it cannot be said to have any special charm of style. Its principal defect, according to our thinking, is the disproportionate attention it gives to insignificant writers, many pages being devoted to an account of works that are never read now except by a very small number of literary specialists. Mr. Gosse justly remarks that the principal work of the period under review was "to reform and regulate ordinary writing." The prose of the preceding age had been involved and clumsy to an extraordinary degree, and it was during the latter part of the seventeenth century that Englishmen first began to write in a style similar to that of the present day; while some of the writers of the eighteenth century have hardly been surpassed since. Another notable work of the eighteenth century itself was the creation of the novel; and Mr. Gosse gives careful attention to both these literary developments. The principal figures in the literature of the period are, in Mr. Gosse's opinion, Dryden, Swift, and Johnson, though it would seem that Richardson, as the inventor of the novel, was entitled to equal rank. The greatest master of prose style, Mr. Gosse thinks, was the metaphysician Berkeley. It must be understood, however, that the book does not deal with philosophical and scientific writers except with reference to their style. In his last chapter the author considers the relation of the English literature of the period to that of the Continent, — a subject that we should have been glad to see more largely treated.

Insects Injurious to Fruits. By WILLIAM SAUNDERS, F.R.S.C. 2d ed. Philadelphia, Lippincott. 12°. $2.

THE first edition of this book appeared in 1883. The experience of Mr. Saunders as director of the Experimental Farms of the Dominion of Canada, and as editor of the *Canadian Entomologist*, would lead us to expect a valuable contribution from his pen. In this expectation we are not disappointed. The matter of the original edition was as complete as it could well be made. Since it appeared, additional facts have come to light, and in the second edition we have these facts embodied. For those who are not familiar with this admirable treatise, we will give a brief outline of its plan and contents.

The cultivation of fruit in America has now become such a matter of importance that every one, whether grower or consumer, is interested in the discovery of every thing which hinders or promotes this great industry. One of the most important factors is insect-life. Injurious insects are so universally distributed that there is no part of this continent where fruit-culture can be profitably carried on without some effort being made to subdue them. But all insects are not injurious. There are friendly species as well as those that are inimical. Indeed, it is to these friendly ones that nature has assigned the task of keeping in subjection those that are destructive, by devouring either their bodies or their eggs. Thus it becomes a matter of great importance that the fruit-grower should be able to distinguish between friend and foe, lest, in his efforts to destroy the latter, he may be depriving himself of his strongest ally. Until Mr. Saunders took this subject in hand, the fruit-grower was obliged to search for much of his information in State and departmental reports, or in books on scientific entomology. In these volumes the practical knowledge is so much encumbered with scientific and other details as to make the acquisition of it too laborious a process for those whose time is so fully occupied as is that of the practical fruit-grower. In the book before us the author has endeavored to bring together all the important facts relating to insects known to be injurious to fruits in all parts of Canada and the United States. His experience as a fruit-grower and student of entomology for nearly thirty years has enabled him to succeed in his self-appointed task, and to present the results in a concise manner, and as free from scientific phraseology as is possible. In the arrangement of the subject, the author has adopted the plan of grouping together the insects injurious to a particular tree or plant. Thus, under the heading, "Insects Injurious to the Apple," we find all the known species inimical to this fruit-tree. These main headings are still further subdivided into those which treat of the insects which attack the roots of the apple-tree, those which attack the trunk, the branches, the leaves, and the fruit. Each of these is fully illustrated, so that the determination of any injurious species is rendered comparatively easy. The species having been identified, the methods to be adopted for its destruction are described. The plan is not only an admirable one from a theoretical point of view, but that it is also a practical one, and one which meets the wants of those interested, is demonstrated by the demand for a second edition. Not less worthy of commendation is the execution of the work. An author's best efforts are often rendered nugatory by the parsimony of his publisher, who is unwilling to provide the necessary illustrations or such paper and type as will make the book attractive. In this respect there can no fault be found by Mr. Saunders. The execution of the work is excellent in all respects, making its perusal a pleasant as well as a profitable task.